APPENDIX 3.3.5.

CATEGORISATION OF DISEASES AND PATHOGENIC AGENTS BY THE INTERNATIONAL EMBRYO TRANSFER SOCIETY

Article 3.3.5.1.

In 2004, the Research Subcommittee of the International Embryo Transfer Society (IETS) Health and Safety Advisory Committee again reviewed available research and field information on infectious diseases which have been studied regarding the risk of their transmission via in vivo derived embryos. As a result of this review, the IETS has categorised the following diseases and pathogenic agents into four categories. Please note that this categorisation applies only to in vivo derived embryos.

The following methodology is used by the Research Subcommittee to categorise infectious diseases with regard to the risk of their transmission:

1. Research procedures used to handle and process the embryos will comply with criteria that have been set out by A. Bielanksi and W.C.D. Hare in Appendix A of the IETS Manual1.

2. The data used by the Subcommittee to categorise or re-categorise diseases will have been published in peer-reviewed articles in reputable scientific journals. This is to ensure that scientific procedures and results, as well as the interpretation of results, have undergone another level of review.

3. Decisions regarding disease categorisation are based on a consensus judgement which is taken annually by the Subcommittee. The names of members of the Subcommittee who are present when the decisions are made are recorded, as are the names of any others whose opinions were solicited in the decision making process.

4. Questions considered in the decision-making process include the following:

    a) What is the nature of the disease? For example, is the causal agent a uterine pathogen? Does it occur in blood? Does it persist in blood? Do asymptomatic shedders occur? What is the minimum infective dose?

    b) Has the causal agent been found in the ovarian/oviductal/uterine (OOU) environment?

    c) Is the causal agent's presence in the OOU environment incidental or is it a consequence of the pathogenesis of the disease?

    d) Is the causal agent's presence in the OOU environment consistent with obtaining viable embryos?

e) Has the causal agent been found in flushing fluids?

f) Has the causal agent been found to penetrate or cross the intact zona pellucida (ZP)?

g) Has the causal agent been found to adhere to the ZP?

h) Is the causal agent removed by washing the embryo?

i) Will special treatments (e.g. with trypsin) remove or inactivate the causal agent?

j) How many embryos have been transferred with or without disease transmission?

k) What is the accumulated evidence for non-transmission of the disease by embryo transfer?

l) What evidence is there that the disease could be transmitted by embryo transfer?

m) Have negative (or positive) results been duplicated by the same or different investigators?

n) Has evidence been accumulated for different animal species as well as for a range of different types and strains of the causal agent?

Article 3.3.5.2.

Category 1

Category 1 diseases or pathogenic agents are those for which sufficient evidence has accrued to show that the risk of transmission is negligible provided that the embryos are properly handled between collection and transfer according to the IETS Manual1.

The following diseases or pathogenic agents are in category 1:

- Bluetongue (cattle)
- Bovine spongiform encephalopathy (cattle)
- Brucella abortus (cattle)
- Enzootic bovine leukosis
- Foot and mouth disease (cattle)
- Infectious bovine rhinotracheitis: trypsin treatment required
- Aujeszky's disease (pseudorabies) (swine): trypsin treatment required.

Article 3.3.5.3.

Category 2

Category 2 diseases are those for which substantial evidence has accrued to show that the risk of transmission is negligible provided that the embryos are properly handled between collection and transfer according to the IETS Manual1, but for which additional transfers are required to verify existing data.

The following diseases are in category 2:

- Bluetongue (sheep)
- Caprine arthritis/encephalitis
- Classical swine fever (hog cholera)
- Scrapie (sheep).

Article 3.3.5.4.

Category 3

Category 3 diseases or pathogenic agents are those for which preliminary evidence indicates that the risk of transmission is negligible provided that the embryos are properly handled between collection and transfer according to the IETS Manual1, but for which additional in vitro and in vivo experimental data are required to substantiate the preliminary findings.

The following diseases or pathogenic agents are in category 3:

- Bovine immunodeficiency virus
- Bovine spongiform encephalopathy (goats)
- Bovine viral diarrhea virus (cattle)
- Campylobacter fetus (sheep)
- ~~Caprine arthritis/encephalitis~~
- Foot and mouth disease (swine, sheep and goats)
- Haemophilus somnus (cattle)
- Maedi-visna (sheep)
- Mycobacterium paratuberculosis (cattle)
- Neospora caninum (cattle)
- Ovine pulmonary adenomatosis
- Porcine reproductive and respiratory disease syndrome (PRRS)
- Rinderpest (cattle)
- Swine vesicular disease.

Article 3.3.5.5.

Category 4

Category 4 diseases or pathogenic agents are those for which studies have been done, or are in progress, that indicate:

1. that no conclusions are yet possible with regard to the level of transmission risk; or

2. the risk of transmission via embryo transfer might not be negligible even if the embryos are properly handled according to the IETS Manual1 between collection and transfer.

The following diseases or pathogenic agents are in category 4:

- African swine fever
- Akabane (cattle)
- Bovine anaplasmosis
- Bluetongue (goats)
- Border disease (sheep)
- Bovine herpesvirus-4
- Contagious equine metritis
- Chlamydia psittaci (cattle, sheep)
- Enterovirus (cattle, swine)
- Escherichia coli 09:K99 (cattle)
- Equine rhinopneumonitis
- Leptospira borgpetersenii serovar hardjobovis (cattle)
- Leptospira sp. (swine)
- ~~Maedi-visna (sheep)~~
- Mycobacterium bovis (cattle)
- Mycoplasma spp. (swine)
- Ovine epididymitis (Brucella ovis)
- Parainfluenza-3 virus (cattle)
- Parvovirus (swine)
- Porcine circovirus (type 2) (pigs)
- Scrapie (goats)
- Trichomonas foetus (cattle)
- Ureaplasma/Mycoplasma spp. (cattle, goats)
- Vesicular stomatitis (cattle, swine).

1 Manual of the International Embryo Transfer Society ~~(1998)~~.